

DECEMBER 7, 2005 Wednesday

Plenary Session II

<3rd Floor>

Chair: *A. Sagara*

09:00 – 09:50 **PL-3** Potential and Desire for HTS Application in Thermonuclear Fusion
P. Komarek

Oral Session Magnets & Conductor I

<3rd Floor>

Chairs: *C.H. Choi, T. Shintomi*

09:50 – 10:20 **MC1-1** Superconducting Magnet and Conductor Research Activities in the US Fusion Program
J. H. Schultz

09:20 – 10:50 **MC1-2** Applied Superconductivity and Cryogenic Research Activities in NIFS
T. Mito

-Coffee Break-

Oral Session Magnets & Conductor II

<3rd Floor>

Chairs: *J. Schultz, K. Funaki*

11:10 – 11:40 **MC2-1** Recent Topics in High-Field A15 Superconductors in Japan
K. Tachikawa

11:40 – 12:10 **MC2-2** Design and Development of a New Generation of Hybrid Magnet Systems for the National High Magnetic Field Laboratory
J. R. Miller

12:10 – 12:30 **MC2-3** Generation of High Magnetic Fields Using Superconducting Magnets
T. Kiyoshi

12:30 – 12:50 **MC2-4** Analysis of Stability and Quench in HTS Devices - New Approaches
V. S. Vysotsky

-Lunch Break-

Poster Session II

<2nd Floor>

Chairs: *S. Takács, A. Nishimura*

13:40 – 15:40 **PS2-1 ~ PS2-40**

-Coffee Break-

Oral Session Magnets & Conductor III

<3rd Floor>

Chairs: *J.R. Miller, T. Ishigohka*

16:00 – 16:30 **MC3-1** Cryogen-Free 18.1 T High Temperature Superconducting Magnet
G. Nishijima

16:30 – 17:00 **MC3-2** Radiation Effects on Insulators for Fusion Magnets
K. Humer

17:00 – 17:20 **MC3-3** Activity in SRL-Nagoya Coated Conductor Center for Long YBCO Coated Conductor
S. Miyata

17:20 – 17:40 **MC3-4** RHQT JR Nb₃Al Conductors Developed for Nuclear Fusion Reactors
T. Takeuchi

Oral Session SC Fusion Devices IIb

<3rd Floor>

Chair: *T. Mutoh*

17:40 – 18:10 **FD2-5** Overview on Long Pulse Steady-State Operation in Tore Supra
D. van Houtte

18:30 – 20:30 **Banquet**

<2nd Floor>

DECEMBER 8, 2005 Thursday

Oral Session Reactor Design I

<3rd Floor>

Chairs: *F. Naimabadi, K. Okano*

- 09:00 – 09:30 **RD1-1** Development of Fusion Technology for DEMO in FZK
G. Janeschitz
- 09:30 – 09:50 **RD1-2** The European Power Plant Conceptual Study: Helium-Cooled
Lithium-Lead Reactor Concept
P. Sardain
- 09:50 – 10:10 **RD1-3** Operational Flexibility of CS-less Tokamak Power Reactor,
VECTOR
S. Nishio
- 10:10 – 10:30 **RD1-4** Design Studies of KOYO-Fast Laser Fusion Power Plant
Y. Kozaki

-Coffee Break-

Oral Session Reactor Design II

<3rd Floor>

Chairs: *G. Janeschitz, Y. Ogawa*

- 10:50 – 11:20 **RD2-1** Recent Progress in ARIES Compact Stellarator Study
F. Najmabadi
- 11:20 – 11:50 **RD2-2** Status of HELIAS Reactor Studies
Yu. Igitchkanov
- 11:50 – 12:20 **RD2-3** Recent Progress in Design Studies on LHD-type Reactor FFHR
A. Sagara

-Lunch Break-

Oral Session Cryogenics

<3rd Floor>

Chairs: *M. Wanner, B. Sarkar*

- 13:20 – 13:50 **CR-1** Cryogenic System of ITER
V. Kalinin
- 13:50 – 14:20 **CR-2** Cryogenics in EAST
H. Y. Bai
- 14:20 – 14:40 **CR-3** CFD Modeling of ITER Cable-in-conduit Super-conductors. Part II:
Correlations for the Central Channel Pressure Drop
R. Zanino
- 14:40 – 15:00 **CR-4** Plant Process Validation Platform for the LHD Cryogenic System
R. Maekawa
- 15:00 – 17:00 **Technical Tour to NIFS**
- 18:00 – 20:00 **Public Talk**
1 Heavy Ion Cancer Therapy–Present and Future
Y. Hirao,
2 Development Status of the Superconducting Maglev System
Y. Nakashima

DECEMBER 9, 2005 Friday

Oral Session SC Fusion Devices III

<3rd Floor>

Chairs: *J. G. Li, T. Hamajima*

- 09:00 – 09:30 **FD3-1** Critical Issues for ITER in the Design, Fabrication and Operation of the ITER Magnets
N. Mitchell
- 09:30 – 10:00 **FD3-2** Japanese Contributions to the Procurement of the ITER Superconducting Magnet
K. Okuno
- 10:00 – 10:30 **FD3-3** Influence of Toroidal Field on the Design of Magnet Systems for Future Fusion Reactors
J. L. Duchateau

-Coffee Break-

Oral Session Advanced Technologies

<3rd Floor>

Chairs: *Y. C. Saxena, K.N. Sato*

- 10:50 – 11:20 **AT-1** Application of High Temperature Superconducting Coil for Internal Ring Devices
Y. Ogawa
- 11:20 – 11:50 **AT-2** The Levitated Dipole Experiment
J. Minervini
- 11:50 – 12:10 **AT-3** Development of DI-BSCCO Wires and their Applications
J. Fujikami
- 12:10 – 12:30 **AT-4** Long Pulse Operation of 170GHz ITER Gyrotron by Beam Current Control
A. Kasugai
- 12:30 – 12:50 **Closing**
Chair: *T. Mito*

Poster Session Program

DECEMBER 6, 2005 Tuesday

- PS1-01 Bi2212 HTS Bulk Tubes Prepared by the Diffusion Process for Current Lead Application
J. Ohkubo
- PS1-02 Mechanical Properties of Bi-2212 Superconducting Bulk with Alumina Fiber Reinforcement
H. Tamura
- PS1-03 Optimization of a Conduction-Cooled LTS Pulse Coil
A. Kawagoe
- PS1-04 Electromagnetic Behavior of HTS Coils in Persistent Current Operations
T. Hemmi
- PS1-05 Improvement in the Critical Current Density by Two Orders of Magnitude for MgB₂ Tapes using an Aluminum Sheath
T. Nakane
- PS1-06 The Low Activation Superconducting Materials Based on the Requirement for an Advanced Fusion Reactor Application
Y. Hishinuma
- PS1-07 High Strength Nb₃Sn Strands Applying the Prebending Effect
K. Watanabe
- PS1-08 Irradiation Effect of D-T Neutron on Superconducting Magnet Materials for Fusion Application
A. Nishimura
- PS1-09 Tensile and Damage Behavior of Plain Weave Glass/Epoxy Composites at Cryogenic Temperatures
S. Takano
- PS1-10 Stability Measurements of LTS/HTS Hybrid Superconductors
G. Bansal
- PS1-11 Stability Test of Cable-In-Conduit-Conductors for SST-1
G. Bansal
- PS1-12 Test and Analysis of Current Unbalance Inside the ASTEX Multi-strand CICC Coil
A. Di Zenobio
- PS1-13 Comparison of Avalanche-like Quenches induced Current Limits between NbTi and Nb₃Sn Cable in Conduit Conductors
K. Seo
- PS1-14 Coupling Loss with Long Time Constants due to Large Displacement of Strands in Large CIC Conductor
T. Yagai
- PS1-15 Different Loss Contributions in Superconducting Magnets Caused by Additional Change of the Magnetic Field
S. Takács
- PS1-16 Change of the Induced Magnetic Field and Time Constant along Finite Twisted Superconducting Cables
S. Takács
- PS1-17 Pressure Drop of the SST-1 Cable-in-Conduit Conductor
S. Pradhan
- PS1-18 Design of the Magnet System for a 42 GHz 200 kW Gyrotron
S. Pradhan
- PS1-19 Effect of Thermal Contact between Winding Pack and Casing on Thermal Behavior of SST-1 TF Coil
A. K. Sahu
- PS1-20 Overview of Fundamental Study on Remountable HTS Magnet
S. Ito
- PS1-22 Feasibility Study on High Field Magnets Using Stress-Minimized Helical Coils
S. Nomura
- PS1-23 Prototype Superconducting Magnet for the FFAG Accelerator
T. Obana
- PS1-24 The Test Facility and EAST Superconducting Magnets Test
Yu Wu

- PS1-25 The Design of Quench Protection of EAST Toroidal Field Power Supply System
L. W. Xu
- PS1-26 Open Loop Excitation and Electrical Parameter Estimation of LHD Superconducting Coils
H. Chikaraishi
- PS1-27 Pulse Height Analysis on the Balance Voltage and Acoustic Emission Signals in the LHD Superconducting Coils
N. Yanagi
- PS1-28 Protection of LHD Coils by Intelligent Observation of Voltage Signals
T. Ishigohka
- PS1-29 Influence of Hysteresis Loss on Quench-Voltage Detection in Large Superconducting Magnets
K. Takahata
- PS1-30 Flashover Characteristics along Spacer at Cryogenic Temperature Influenced by Minute Gaps between Spacer and Electrode
A. Minoda
- PS1-31 Numerical Analysis on Effect of Surface Oxidation on Stability of LHD Conductor Immersed in Saturated He I and Pressurized He II
M. Ohya
- PS1-32 Upgrading Program for Improving the Cryogenic Stability of LHD Helical Coils by Lowering a Temperature
S. Imagawa
- PS1-33 Steady State Heat Transfer of an Oxidized Copper Surface in Subcooled Liquid Helium
A. Iwamoto
- PS1-34 Performance of Cold Compressors in a Cooling System of an R&D Superconducting Coil Cooled with Subcooled Helium
S. Hamaguchi
- PS1-35 Results of LHD Cryogenic System Operations
S. Moriuchi
- PS1-36 Cryogenic Process REal-Time SimulaTor (C-PREST)
K. Ooba
- PS1-37 Helium Refrigeration System of the KSTAR Tokamak
C. H. Choi
- PS1-38 Current Leads Performance Test for SST-1
B. Sarkar
- PS1-39 Cryogenic System of Steady State Superconducting Tokamak SST-1: Operational Experience and Controls
B. Sarkar
- PS1-40 Operation of Cryostat Vacuum Vessel of HT-7 Superconducting Tokamak
Y. Yang
- PS1-41 Design Study of the Cryogenic Systems for the Fusion Power Plant
S. Yamada
- PS1-42 Cryogenic Pellets with Controlled Length for Pellet Ablation Studies
I. da S. Rêgo
- PS1-43 Performance of Fueling Pellet Injectors for Large Helical Device
M. Hoshino

DECEMBER 7, 2005 Wednesday

- PS2-01 Stability Analysis of GAMMA10 Tandem Mirror with Diverter *Y. Sasagawa*
- PS2-02 The Analytical Formulation of a Neoclassical Resonant Transport in a Mirror
I. Katanuma
- PS2-03 The Study by Mappings of the Orbits and Diffusion of Ions Trapped in the Magnetic
Field of GAMMA10 *H. Saimaru*
- PS2-04 Density Measurement by Using a Gold Neutral Beam Probe at the Inner Mirror Throat in
the Tandem Mirror GAMMA10 *Y. Miyata*
- PS2-06 Progress Towards High-Performance Steady-State Operation on DIII-D
C. M. Greenfield
- PS2-07 Plasma Control Techniques Applicable to High Performance, Steady State,
Superconducting Tokamaks *A. G. Kellman*
- PS2-08 Two Dimensional Ion Flow Velocity Measurement System *N. Nishino*
- PS2-09 Application of Visible Bremsstrahlung to a Density Monitor in Steady State Fusion
Reactor *H. Yamazaki*
- PS2-10 Study of First Mirror Exposure and Protection in HL-2A Tokamak *Y. Zhou*
- PS2-11 New Methods for Measuring Plasma Energy Using Superconducting Helical Coils
K. Hamamura
- PS2-12 Ion Cyclotron Conditioning with Strong Magnetic Field in LHD *N. Ashikawa*
- PS2-13 Real Time Impedance Matching System Using Liquid Stub Tuners in ICRF Heating on
LHD *K. Saito*
- PS2-14 Application of a magnetized coaxial plasma gun for a formation of a high-beta
field-reversed configuration *T. Nishida*
- PS2-15 Compact toroid injection system for JFT-2M *N. Fukumoto*
- PS2-16 Start-up Assist by Magnetized Plasma Flow Injection on TPE-RX Reversed-Field Pinch
T. Asai
- PS2-17 Suppression of Fast Electron Leakage from Large Openings in a Plasma Neutralizer for
N-NB System *M. Kashiwagi*
- PS2-18 Compact Magnetic Systems for Fusion Reactor Research *S. V. Ryzhkov*
- PS2-19 Conceptual Design Activities of FDS Series Fusion Power Plants in China *Y. Wu*
- PS2-20 Comparative study of D-³He low and high aspect ratio tokamak reactors
O. Mitarai
- PS2-21 Evaluation of Operation Scenario for Fusion DEMO Plant at JAERI -Constrain of Neutral
Beam Injection System- *M. Sato*
- PS2-22 Non-Inductive Operation Scenario of Plasma Current Ramp-down in CS-less, Advanced
Tokamak Reactor *Y. Nakamura*
- PS2-23 Conceptual Design Study on a Demonstration Tokamak Fusion Power Plant:
Demo-CREST *R. Hiwatari*
- PS2-24 Dynamics of D+D Fusion Products in LHD Geometry *A. A. Shishkin*
- PS2-25 Removal of Cold-alpha Particles from Fusion Helical Reactor *A. A. Shishkin*

- PS2-26 Burning Plasma Simulation and System Assessment of Tokamak and Helical Reactor
K. Yamazaki
- PS2-27 Numerical Study of Magnetic Field Configuration for FFHR from a Viewpoint of Divertor and Edge Field Structure *T. Morisaki*
- PS2-28 Development of Reactor Design Aid Tool Using Virtual Reality Technology
N. Mizuguchi
- PS2-29 Investigation of Tritium Breeding Performance in FFHR by Three-Dimensional Neutronics Calculation *T. Tanaka*
- PS2-30 Development of CAD/MCNP Interface Program Prototype for Fusion Reactor Nuclear Analysis *S. Sato*
- PS2-31 Update and Visualization of ITER Basic Neutronics Model with the Auto-Modeling Code MCAM *Q. Zeng*
- PS2-32 Possibility of Tritium Self-Sufficiency with the Outboard Blanket Only in Low Aspect Ratio Tokamak Reactor *T. Hayashi*
- PS2-33 Conceptual Study on a Fast Ignition ICF Reactor with a Single Dry Wall Chamber and a High Repetition Laser *K. Okano*
- PS2-34 Development of a System Code for an ICF Reactor and Investigation of a Design Regime for a Dry Wall Chamber Concept *T. Goto*
- PS2-35 Control Techniques of a Thrust Vector for Magnetic Nozzle in Laser Fusion Rocket
Y. Kajimura
- PS2-36 Orbit Adjusting System Using Magnetic Lens for Pb Coated Superconducting ICF Pellet
R. Tsuji
- PS2-37 Structural Stability and Self-healing Capability of Er_2O_3 In-situ Coating on V-4Cr-4Ti in Liquid Lithium *Z. Yao*
- PS2-38 Activation Experiment with D-T Neutrons on Materials Relevant to Liquid Blankets
Z. X. Li
- PS2-39 The Potentiality for Fusion Application of V-4Cr-4Ti in Various Thermo-Mechanical States *J. M. Chen*
- PS2-40 Microstructure Analysis on JLF-1 Steel Tested by Tensile and Fatigue Deformation
H. L. Li